

**UNCLASSIFIED**

**DEPARTMENT OF DEFENSE**

**U.S. TRANSPORTATION COMMAND**

**INFORMATION TECHNOLOGY EXHIBIT**



**FY2001 BUDGET ESTIMATE SUBMISSION**

**SEPTEMBER 1999**

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**I. Overall Mission and IT Program**

The mission of USTRANSCOM is to provide air, land, and sea transportation to meet National Security objectives in peace and in war. As a unified command, USTRANSCOM exercises combatant command and peacetime management over the common-user aspects of the global mobility network, and executes this responsibility via its Transportation Component Commands (TCCs)--the Air Mobility Command (AMC), the Military Sealift Command (MSC), and the Military Traffic Management Command (MTMC). USTRANSCOM ensures this network is capable of rapidly transitioning from peacetime to contingency and wartime operations as required by the National Command Authorities--a readiness demonstrated on a daily basis, as USTRANSCOM forces operate worldwide in direct support of U.S. humanitarian and military operations.

USTRANSCOM's ability to support the warfighting CINCs worldwide is directly tied to its centralized headquarters and three TCCs. The TCCs provide the lines of communication to the Services, ensuring assets are available when needed for a seamless transition from peace to war. Our ability to execute our responsibilities under the National Military Strategy resides in the core competencies of our TCCs. Our successes result from the synergy of military and commercial lift (air, land, and sea), port operations, and afloat prepositioning--all involving our TCCs. During peacetime, our TCCs execute USTRANSCOM's single manager responsibilities for defense transportation which involves day-to-day movement of passengers and cargo worldwide. USTRANSCOM's operation of the Defense Transportation System (DTS), during both routine and contingency operations, is the keystone of our ability to make a seamless transition from peace to war. The TCCs also provide the absolute critical linkage to the Services' core competencies in organizing, training, and equipping forces. We are inextricably linked to Service training, Operations Tempo (OPTempo), Personnel Tempo (PERSTEMPO), maintenance, acquisition, logistics, and support policies and procedures--all key enablers in providing ready forces and capabilities.

USTRANSCOM along with other top transportation organizations discovered that the movement of information is as important to their customers as their ability to move resources. The capacity to move data must be accompanied by precise, accurate and secure

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information from a variety of sources. USTRANSCOM is on the leading edge of this revolution in transportation business processes, best typified by our pioneering work in the field of in-transit visibility (ITV).

The pivotal information system for USTRANSCOM's future capability to manage and exploit information is the Global Transportation Network (GTN). GTN is the worldwide web-based information system that continues to mature and provides a capability warfighters in the past could only imagine. GTN gives our customers ITV of every piece of cargo they ship with us from fort to foxhole. And it gives us the command and control tools to manage the flow, or if necessary, to divert it enroute. Today's warfighters...from CONUS to Korea, from Bosnia to Southwest Asia...are already capitalizing on the capabilities and promise of GTN. And the promise of GTN is one of the increased efficiencies which is necessary if we are to be effective in meeting the challenge of supporting this country's dual Major Theater War (MTW) Military Strategy with USTRANSCOM's single MTW transportation force. Bottom line: We must encourage all DTS users to continue to partner with us in this information systems revolution.

## **II. Strategic Plan Elements/Business Plan Requirements**

### **Our Vision**

"USTRANSCOM, providing timely, customer-focused global mobility in peace and war through efficient, effective, and integrated transportation from origin to destination". Information Technology plays a critical role in achieving excellence in our vision and supporting our major mission requirements. USTRANSCOM has established five long range goals, one each for each of our Core Processes of Serve the Customer, Readiness, Planning and Execution, Information Management and Financial. Most of these goals rely heavily on Information Technology initiatives.

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**Our Core Processes**

**-- Serve the Customer:**

Goal Statement: Determine customer needs; expand customer base; enhance customer satisfaction and loyalty through responsive service and process improvement. Global Transportation Network (GTN) and other systems provides analytical data to determine how well we perform.

**-- Readiness:**

Goal Statement: Ensure our ability to meet our National Command Authority taskings. Most systems are Command and Control (C2). We cannot track and control our organic/contractual assets without this. Our success as a supporting CINC in providing strategic mobility to other CINCs is dependent on our C2 capability.

**-- Planning and Execution:**

Goal Statement: Improve the timeliness, effectiveness, and security of our peacetime and wartime capabilities.

**-- Information Management:**

Goal Statement: Develop system architecture to support integrated information management systems promoting Intransit Visibility/ Total Asset Visibility (ITV/TAV) of our global transportation mobility requirements.

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**-- Financial:**

Goal Statement: Develop and manage financial processes and systems, which provide effective financial control over Defense Transportation System (DTS) operations and promote businesslike practices. USTRANSCOM in partnership with Defense Finance & Accounting Service (DFAS) have a number of efforts to reach Chief Financial Officer (CFO) compliant.

Information Technology will improve our service to our customers by providing a decision support system for Defense Transportation System (DTS) operations and by automating our customer feedback processes. Information Technology will provide critical support for the planning and execution of DTS operations by providing In-Transit Visibility (ITV) over all cargo and personnel moving through the DTS, supporting improved development of transportation feasibility estimates, improving modeling and simulation tools, and improving information systems security. Information Technology also supports improved intelligence collection and dissemination required for safe DTS operations and will provide the tools necessary to enhance the Command and Control of the entire DTS.

Strategic initiatives directly supporting our Core Process of Information Management include development of an integrated DTS Enterprise Architecture, completion of our information systems migration strategy, and ensuring standards and architecture support is developed for all aspects of DTS operations. Information Technology will also play a crucial role in the development of integrated financial systems for the DTS.



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**III. Projected and Actual Accomplishments of Information Technology (IT) investments by Mission/Functional Area**

**Air Mobility Command**

AMC Command, Control, Communications, and Computer (C4) systems and programs provide critical command and control (C2) information processing for planning, executing and monitoring airlift and tanker missions in support of peacetime, training, exercises, humanitarian, contingency and wartime operations. The physical operation environment of C4 systems applies to all echelons of command (fixed, deployed, and airborne), and they cover the full spectrum of conflict between and within theaters. C4 systems provide global C2, In-Transit Visibility (ITV), voice, office information systems applications and e-mail, and Visual Information (VI) for mobility operations and our customers. Major C4 functions supporting operational forces include mission planning and scheduling, aircrew scheduling, passenger reservations and manifesting, cargo manifesting, and ITV of cargo and passengers during "all type operations". Airlift C2 is achieved by means of separate, but integrated, voice and data communications systems that link the National Command Authorities (NCA), CINC USTRANSCOM (dual-hatted as AMC/CC), and AMC forces. C2 responsibilities include execution planning, scheduling, and execution monitoring. During a crisis, C2 is expanded to include course of action development.

The objective of Command & Control Information Processing System (C2IPS) is to improve AMC's command and control capability at all echelons and phase out the manual paper/greaseboard/telephone environment. C2IPS provides a centralized "electronic greaseboard" capability for each functional area in the Airlift Wings, Air Refueling Wings, Airlift Squadrons, and Air Refueling Squadrons. During contingencies and real world deployments, the system directly supports the Commander Mobility Forces using Tanker Airlift Control Elements (TALCE), and deployed tanker/airlift control centers. C2IPS provides automated tools to track tanker/airlift, and message distribution and automated tools to aid the decision making process. In addition, the system extends the command and control capabilities of the AMC Headquarters Global Decision Support System (GDSS) to field

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units. C2IPS will interface with other key AMC C2 systems and share critical tanker/airlift and aircrew information between HQ AMC and fixed/deployed locations.

AMC has developed its Key Results Areas (KRAs) to assist the organization in focusing on critical day-to-day mission success. Periodic monitoring of key processes related to these KRAs will allow AMC to determine efficiency and effectiveness. Goals are more visionary; expressing intent, desired conditions, or end states. AMC's goals and KRAs are complementary in nature; and when combined, they form a framework for assessing both short-and-long term mission successes.

#### **Military Sealift Command**

Military Sealift Command (MSC) provides sealift support for the Department of Defense (DoD) as the Sealift Component of the United States Transportation Command (USTRANSCOM). MSC's Command, Control, Communications and Computer (C4) Systems must be closely integrated with those of USTRANSCOM and the other Transportation Component Commands (TCCs). MTMC has within its mission responsibilities the scheduling, loading and unloading of cargo aboard MSC operated ships, requiring an especially close working relationship and integration effort. The technology supporting C4 provides the enabling infrastructure for a strong DTS. MSC's Information Technology (IT) TWCF budget plans to fully support these mission requirements.

Integrated Command, Control, and Communications project (IC3) is MSC's migration program to integrate systems and business processes from deliberate planning through execution in a common operating environment. IC3 will become an extension of the Global Command & Control System (GCCS) infrastructure allowing MSC to reduce redundancy in hardware, software, and communications while maintaining compatibility with DoD, DoN, and Transportation migration initiatives. IC3 systems will interface with TRANSCOM's GTN to provide ship schedules, with CDSS to provide information for decision-making, and with Joint Flow & Analysis System for Transporters (JFAST) for execution and deliberate planning. IC3 also will interface with joint

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systems such as Joint Operation Planning and Execution System (JOPES) operating in GCCS for operations/exercises/contingency requirements and MTMC's Worldwide Port System (WPS) for ITV data.

Integrated Command Environment (ICE) includes support for systems development of MSC's accounting system and Integrated Acquisition Management System (IAMS). ICE also includes support for LANs at all offices, area commands and headquarters, for Data Warehouse implementation in support of the DTS. ICE continues development of Ships Management Information System (SMIS), Business Systems, Engineering, GCCS, and Electronic Data Interchange (EDI) interfaces. New requirements will be developed as requested by the functional sponsor.

**Military Traffic Management Command**

The Military Traffic Management Command (MTMC) mission is to provide the DoD worldwide single port management, transportation, and traffic management services; deployment planning and engineering; and 21st Century technologies. MTMC develops and maintains integrated transportation systems to support surface movement within the DTS. MTMC is also the lead agent for nine of DoD's 23 approved transportation migration systems. Among these are Worldwide Port System (WPS), Integrated Booking System (IBS), Integrated Computerized Deployment System (ICODES), CONUS Freight Management (CFM), Transportation Operational Property System (TOPS), and Asset Management System (AMS). Additionally, MTMC develops engineering solutions that ensure infrastructure, equipment, and intermodal assets meet CINC force projection requirements.

The Deputy Chief of Staff for Information Management (DCSIM), MTMC, is responsible for developing and maintaining a network of automated information systems that support surface movements of DoD cargo and passengers through the DTS. In order to ensure MTMC meets the transportation challenges of the 21<sup>st</sup> century, we continue to look at business processes and take advantage of new technologies.

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The role of IT at USTRANSCOM has moved beyond an enabler to an integral capability for mission execution. To maximize the alignment between IT investments and mission support, Chief Information Officer (CIO) goals and objectives are linked and support the USTRANSCOM Strategic Goals and Objectives. To achieve these goals and objectives, USTRANSCOM's capital planning process manages an integrated portfolio of IT investments. USTRANSCOM strives to maintain an optimal balance between new starts and existing system modifications. IT programs are evaluated in the areas of operational validity, cost reasonableness, schedule propriety, and technological feasibility.

The Global Transportation Network (GTN) supports the DoD mission functional goals of ensuring that U.S. Armed Forces maintain sufficient levels of readiness to carry out the National Military Strategy. GTN provides flexible, ready military forces and capabilities; maintains US technological superiority in support of national defense; and will reduce costs and eliminate unnecessary expenditures across DoD mission areas by employing modern management tools, total quality principles and best business practices. Currently, Commercial Electronic Data Interchange (CEDI) provides GTN users the capability to view commercial transportation data via the GTN system. Intransit Visibility (ITV) information transmitted from commercial carriers is now integrated with GTN data and can be extracted via the GTN standard query mechanism. The revalidated USTRANSCOM Operational Requirements Document (ORD), 30 January 1998, states the high level requirements for GTN. GTN will provide the automated command and control support necessary for USTRANSCOM to carry out its mission to provide global transportation management for the Department of Defense. The Defense Planning Guidance provides that USTRANSCOM will implement as soon as practical the Intransit Visibility system, in coordination with DLA, the Services, and unified commanders. New initiatives will maximize the use of existing systems with low-cost, high payback capabilities".

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Joint Mobility Control Group - a seven-node, virtual command center which will bring DTS Command and Control operations into the 21<sup>st</sup> century. Recent accomplishments include: selecting infoworkspace as the prototype for a collaborative planning tool; installing the prototype in TCJ5 and TCJ6; providing demonstrations and training for the prototype; installing COGNOS Powerplay as the Decision Support System; upgraded workstations in the Mobility Command Center (MCC) and Crisis Action Team (CAT); in the process of upgrading the networks of the MCC and the TCC command centers to Asynchronous Transfer Mode (ATM). Near-term initiatives to be completed include: linking component command centers with a high speed digital ATM network; integrating video/collaborative planning tools, and development of the On-Line Analytical Processor (OLAP) decision support system.

**IV. Major/Specific Initiatives/IT Portfolio supported by this Budget**

**Air Mobility Command**

AMC information technology (IT) programs and initiatives continually evolve to support USTRANSCOM and NCA in maintaining our national defense posture. Fiscal concerns limit large weapon system acquisitions and reduce personnel levels compelling optimization of funds purchasing technological advances. These improvements will enhance programs designed to improve capabilities, reduce vulnerabilities, and promote component and system interoperability. Existing C4 systems are being modernized and integrated with new generation information systems to provide AMC a single C2 system for airlift forces. To ensure interoperability, C4 system requirements advocating standard architectural solutions (off-the-shelf hardware, software, applicable open system interconnection compliant protocols, etc.) and migration to that end will receive priority over proprietary or nonstandard solutions. Business case analysis and process modeling continue to play a critical role in C4 modernization efforts. No funds will be spent on further development or enhancement of legacy systems. As C4 programs evolve to support the AMC Corporate Architecture Strategy, they must have life-cycle support from cradle to grave.

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Command and Control Information Processing System (C2IPS): The objective of C2IPS is to improve AMC's command and control capability at all echelons and phase out the manual paper/greaseboard/telephone environment. C2IPS provides a centralized "electronic greaseboard" capability for each functional area in the Airlift Wings, Air Refueling Wings, Airlift Squadrons, and Air Refueling Squadrons. During contingencies and real world deployments, the system directly supports the Commander Mobility Forces using Tanker Airlift Control Elements (TALCE), and deployed tanker/airlift control centers. C2IPS provides automated tools to track tanker/airlift, and message distribution and automated tools to aid the decision making process. In addition, the system extends the command and control capabilities of the HQ AMC Global Decision Support System (GDSS) to field units. C2IPS will interface with other key AMC C2 systems and share critical tanker/airlift and aircrew information between HQ AMC and fixed/deployed locations. The C2IPS system development contract has been re-baselined to undergo software and hardware modernization to a client-server architecture. The client-server architecture will provide improved system performance, flexibility and supportability. The last software delivery, increment 2.0D, under the current architecture was completely fielded July 1997. Increment 2.0D fixed several interface problems between C2IPS and GDSS, standardized system edit and validation checks, and added GDSS functionality to the system. The program began site surveys and implementation of increment 3.0a (client-server) in December 1998. Dover AFB was the first site fielded (burn-in site), nine satellite sites will be brought on-line Feb-Mar 99. Implementation worldwide will begin after Dover AFB DE is completed.

Theater Deployable Communications (TDC) incorporates two sub-elements: a high capacity, military and commercial band SATCOM terminal and a computer and communications infrastructure package. The Lightweight Multiband Satellite Terminal (LMST), AN-TSC152 is the long haul connectivity and the Integrated Communication Access Packages (ICAP), which provides the customer interface. Its primary purpose is to provide AMC/TRANSCOM with a complete integrated initial communications capability. Information Technology (IT) and C2 systems such as C2IPS, Combat Intelligence System (CIS), and Global Transportation Network (GTN) will use TDC equipment to provide connectivity among deployed and fixed forces supporting wartime taskings and Military Operations Other Than War (MOOTW).

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**Military Sealift Command**

The major initiatives reported are Integrated Command Environment (ICE) and Integrated Command, Control, and Communications (IC3). Efforts for ICE are system development which includes Financial Management Information System, DoD Standard Procurement System (SPS), and EDI migration. Provides equipment and software to implement LANs at all area commands and headquarters. Provides MSC Data Warehouse implementation in support of the Defense Transportation System (DTS) and costs associated with solving Year 2000 problems. Efforts for IC3 are to integrate systems and business processes from deliberate planning through execution in a common operating environment. IC3 will become an extension of the GCCS infrastructure allowing MSC to reduce redundancy in hardware, software, and communications while maintaining compatibility with DoD, DoN, and Transportation migration initiatives.

**Military Traffic Management Command**

MTMC has undertaken initiatives to migrate to internet-based systems where it is functionally appropriate and technologically feasible. Electronic Transportation Acquisition (ETA) is a web-enabled system which allows customers to conduct business with MTMC through the MTMC Home Page. It offers users the capability of a single point of entry, seamless integration to the transportation systems, and quick access in a user friendly environment. ETA was implemented in August 1998 and currently provides access to MTMC freight, personal property, passenger, and ocean cargo systems. ETA also provides links to systems and organizations outside of MTMC. Development is underway to provide a single point of authentication for users.

In addition to the .mil addresses now used, MTMC has started development of an E-Commerce Network Pilot program to provide a .gov address for MTMC's commercial trading partners to access MTMC's unclassified transportation systems. The E-Commerce Network Pilot will reduce the load on the overburdened NIPRNET, and eliminate indiscriminant Internet blocking of our commercial trading partners by the Army Network Security Operations Center (ANSOC).

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The Intransit Visibility (ITV) Program funds a number of initiatives such as development of new automated capabilities designed to support ITV, establishment of interfaces between MTMC and a variety of DoD, Service, USTRANSCOM, and its components, and commercial carrier industry systems. ITV Program also funds the transition of legacy systems to standard integrated migration systems, the development of enhancements to satisfy new requirements, and the insertion of technology such as implementing Automated Identification Technology (AIT) and Electronic Data Interchange (EDI). Another key initiative is the Deployable Port Operations Center/Mobile Port Operations Center (DPOC/MPOC), a self sustaining deployable configuration to support port operations in an austere contingency or exercise environment.

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GTN will provide USTRANSCOM'S customers with the transportation information they need to manage cargo, force, passenger, and patient requirements and movements with airlift, air refueling, aeromedical, rail, motor, and sealift. This information will pass from GTN to the Joint Operation Planning and Execution System (JOPEs). GTN implements the USTRANSCOM chartered tasking to provide for deployment-related Automated Data Processing (ADP) systems integration and to provide centralized traffic management in peace and war. GTN provides ITV required in OSD's Total Asset Visibility (TAV) program. Development of GTN will continue along with maintenance of an operational system. The Acquisition Program Baseline (APB) recognizes the tremendous growth in requirements with a schedule extension of Full Operational Capability (FOC) to March 2003.

Transportation Financial Management System (TFMS) is a standard, integrated financial management system for DTS assets and operations. This proposed system has been under discussion since 1994. A feasibility study has been contracted out. The deliverable from the study will be a technical solution. An updated USTRANSCOM and TCC functional and technical financial management requirements document is in development.



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USTRANSCOM is the proponent for the Advance Shipping Notice (ASN) initiative, which will develop the capability to accurately project the arrival of cargo at Air Mobility Command ports of embarkation, two to ten days prior to actual arrival. Advanced shipping notification will minimize port hold times, increase APOE through-put, and facilitate aircraft scheduling for optimum effectiveness and efficiency, thereby significantly enhancing customer support. Continued modeling and process improvement are ongoing with the objective of completing validation testing of the Proof of Concept in a field environment within FY00. The ASN initiative has been enthusiastically approved when briefed to many joint officials up through USD(A&T).

**V. Changes to Prior Baseline Budget**

Changes between the FY00 President's Budget (PB)/FY01 ABES (the following chart is in thousands):

	FY00	FY01	FY00	FY01	FY00	FY01
	PB	ABES	PB	ABES	PB	ABES
IT-1 SYSTEM	FY99	FY99	FY00	FY00	FY00	FY00
<b>Global Transportation Network (GTN)</b>						
Development/Modernization	\$28,519	\$28,819			\$25,265	\$30,765
Current Services/Operations	\$9,783	\$7,962			\$16,102	\$9,891
Total	\$38,302	\$36,781			\$41,367	\$40,656

Description of Change:

FY99 – Dev/Mod: No significant change.

FY00 – Dev/Mod: Increase in funding will provide GTN with an updated database and query capability.

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FY99 – Current Services: Decrease due to maintenance costs transferring into overall command and control programs in the Non-major and other sections of this report.

FY00 – Current Services: Current Services: Decrease due to maintenance costs transferring into overall command and control programs in the Non-major and other sections of this report.

Changes between the FY00 President's Budget (PB)/FY01 ABES (the following chart is in thousands):

	FY00	FY01	FY00	FY01	FY00	FY01
	PB	ABES	PB	ABES	PB	ABES
	FY99	FY99	FY99	FY99	FY00	FY00
IT-1 SYSTEM						
Command & Control Information Processing System (C2IPS)						
Development/Modernization	\$22,040	\$20,771			\$20,960	\$18,460
Current Services/Operations	\$19,851	\$19,558			\$19,816	\$15,923
<b>Total</b>	<b>\$41,891</b>	<b>\$40,329</b>			<b>\$40,776</b>	<b>\$34,383</b>

Description of Change:

FY99 – Dev/Mod: No significant change.

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FY00 – Dev/Mod: Decrease is based on a thorough Corporate Board Review which reprogrammed funds to high priority requirements.

FY99 – Current Services: No significant change.

FY00 – Current Services: Decrease is based on a thorough Corporate Board Review which reprogrammed funds to high priority requirements.

**Changes between the FY00 President's Budget (PB)/FY01 ABES** (the following chart is in thousands):

	FY00	FY01	FY00	FY01	FY00	FY01
	PB	ABES	PB	ABES	PB	ABES
	FY99	FY99	FY99	FY99	FY00	FY00
<b>USTRANSCOM</b>						
Development/Modernization	\$173,801	\$180,447			\$160,136	\$160,722
Current Services/Operations	\$146,490	\$128,682			\$151,818	\$130,252
Total	\$320,291	\$309,129			\$311,954	\$290,974

Description of Change:

FY99 – Dev/Mod: Net increase due to new program start, Information Assurance/Information Protection (IA/IP), to protect the Defense Transportation System (DTS). Increase to Advance Computer Flight Planning (ACFP) to re-engineer software. Increase

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for additional funding for the MSC accounting system and Y2K. Decrease to MRM #15 for delayed decision of acceptable prototype model that pushed requirements out to future years.

FY00 – Dev/Mod: Slight increase due to additional funding for Global Transportation Network (GTN) and IA/IP with decreased funding to C2IPS, Consolidated Air Mobility Planning System (CAMPS), and SATCOM (L-Band).

FY99 – Current Services: Decrease due to maintenance costs transferring into overall command and control programs in the Non-major and other sections. Decrease to MRM #15 due to delayed decision for acceptable prototype model. Decrease also to Global Command and Control System (GCCS) to pay for Y2K certification and repairs, and decrease to Command C4S.  
FY00 – Current Services: Net decrease due to maintenance costs transferring into overall command and control programs in the Non-major and other sections of this report. Decrease to C2IPS. Increase for Automated Identification Technology (AIT) equipment purchase in support of Intransit Visibility (ITV) and an increase to Systems Integration.

**Changes between fiscal years of the FY01 ABES (the following chart is in thousands):**

	FY99/FY00	FY00/01	FY01/02
<b>IT-1 SYSTEM</b>			
<b>USTRANSCOM</b>			
Development/Modernization	\$180,447/\$160,722	\$160,722/\$178,350	\$178,350/\$182,164
Current Services/Operations	\$128,682/\$130,252	\$130,252/\$141,373	\$141,373/\$147,239
Total	\$309,129/\$290,974	\$290,974/\$319,723	\$319,723/\$329,403

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Description of Change:

FY99/00 – Dev/Mod: Decrease to C2IPS delaying technical refreshments. Decrease to Integrated Command Environment (ICE) due to completion/reduction in Y2K and COTS/ORACLE funding. Completion of fielding of Build Two Equipment for Global Air Transportation Execution System (GATES) reduced funding requirements. Decrease to Systems Integration to support higher priorities. Joint Mobility Command Group (JMCg) decreases as less equipment and software development is purchased. Decrease due to Command C4S program ending in FY99. Increase to Global Decision Support System (GDSS) due to technology infusion initiative as GDSS transitions to Web-based architecture. Increases to Information Assurance/ Information Protection (IA/IP) and ITV.

FY00/01 – Dev/Mod: Increase due to scheduled hardware replacement and development of GTN training. Increase to Advance Shipping Notice (ASN) project start in FY01. Increase to GATES for ITV equipment, increase in Life Cycle Maintenance cost as system matures, and additional functionality still under development. Increases to Systems Integration and AIT. Decrease to GDSS DII/COE compliance funds in FY01 and reprogrammed into FY02. Decrease to CONUS Freight Management (CFM) and Integrated Command Environment (ICE).

FY01/02 – Dev/Mod: Increase to GATES for ITV equipment, increase in Life Cycle Maintenance cost as system matures, and additional functionality still under development. DII/COE compliance funds for GDSS were reprogrammed from FY01 into FY02.

Increase to System Integration with decrease to L-Band SATCOM.

FY99/00 – Current Services: Increase due to GTN maintenance tail for functionality achieved in FY99. Contractor support LAN operations increase to cover increased World Wide Web operations. Increase to MRM #15, System Integration, and GATES. IA/IP increase needed to obtain security personnel. Decrease to Core Automated Maintenance System (CAMS/G081) to be

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caused by the removal of KC-135/KC-10 aircraft from TWCF funded to O&M funded. Decrease to ICE due to completion/reduction in Y2K and COTS/ORACLE.

FY00/01 – Current Services: Increase to C2IPS for DII/COE Compliance. Increase to System Integration to support requirements/enhancements to C2 systems to add integrated Flight Management capabilities. Increase to GATES for increased maintenance. GTN funding requirements decrease as system becomes operational and funding responsibility transfers from GTN to TCJ6.

FY01/02 – Current Services: Increase to C2IPS for DII/COE Compliance. Increase to Integrated Command Environment (ICE). TDC and ACFP operational cost increase proportionally to support increased number of fielded assets. Increase to CAMS/G081 due to new technology and increased capability/availability of critical aircraft data. Decrease to MRM #15, System Integration, and Command C4S.

**VI. Management Section**

**a. Clinger-Cohen Implementation**

On 30 July 1998, USCINCTRANS, appointed the Director, Command, Control, Communications and Computer Systems (C4S) (TCJ6) as the USTRANSCOM Chief Information Officer (CIO) to provide the required centralized management and accountability for our command's Information Resource Management (IRM) and Information Technology (IT). USTRANSCOM established a CIO Implementation Plan with the CIO organization established and operating by 1 October 1998. A CIO Concept of Operations (CONOPS) defines the CIO mission, vision, key result areas, goals, processes, and responsibilities. The USTRANSCOM CIO is responsible for mission results through technology by working with senior managers to achieve our strategic objectives. Our goal is to promote improvements in work processes, and develop and implement an integrated, agency-wide technology architecture.

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**CIO Responsibilities:**

- Principal advisor to USCINCTrans and senior USTRANSCOM leadership for all IRM and IT related issues.
- Manage information resources to increase productivity, effectiveness, and efficiency.
- Develop, disseminate, implement, and enforce IRM policies, procedures, and standards.
- Develop, maintain, and ensure compliance with a strategic IRM plan.
- Develop, maintain, and facilitate a sound and integrated IT architecture.
- Establish and oversee the IT financial planning and investment control process.
- Establish goals, objectives, and performance measures for IT programs; monitor and evaluate performance of these programs; and report progress to USCINCTrans (includes benchmarking).
- Ensure all users (initial system) and technicians are trained to optimally exploit IT capabilities.
- Ensure processes are optimized before making significant investments in IT.
- Determine whether IT support functions should be retained in-house, outsourced, or privatized prior to investing in new IT.

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**CIO PROCESSES:**

- Performance Measurement and Reporting.
- Information Resources Management (IRM) Strategic Planning
- Financial Planning and Investment Control.
- DTS Architectures.
- Functional Process Improvement (FPI).
- Information Resources Management.
- Information Technology Training and Education.
- Configuration Management.
- Information Technology Acquisition.
- Information Assurance (IA).
- Program Management.



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**b. CIO Management Framework**

The CIO responsibilities were spread across the directorates and direct reporting units. To centralize IT/IRM accountability, realignment was necessary to give the CIO the required resources to achieve mission accomplishment. Ninety billets were realigned with the following areas assigned to the CIO: TCJI information management, TCJ5 future information technology, TCJ6, TCSG TRAC2ES program, and the Transportation Corporate Information Management (CIM) Center. Several subordinate divisions, branches, and teams were established: the Architecture and Technical Integration division, the C4 Contingency Support Branch, and the CIO Support Team. The CIO Support Team provides the CIO with the staff to review issues and ensure performance measures are used to evaluate the benefits of IT investments. Additionally, this office serves as the Secretariat for the Chief Information Officer (CIO) Program Review Panel (CPRP), maintains the CIO CONOPS, and arranges for biannual CIO strategic planning sessions. During the May 1999 CIO strategic planning session, the CIO organizational structure was reviewed and minor adjustments were made.

**c. GPRA and Related Reforms Actions**

USTRANSCOM is moving forward toward full compliance with the Government Performance and Results Act. The next revision of our Strategic Plan, currently in draft, will contain strategic objectives that are measurable and attainable, key characteristics of GPRA-compliant plans. Further, the overall resources required to attain the Plan will be captured in the Corporate Resources Plan, as mentioned in Section II above. We fully anticipate that our developing business plan concept, in concert with our Strategic Guidance and Corporate Resources Plan will provide the definition and measurement of annual performance goals, an additional requirement of the GPRA.

To maximize the alignment between IT investments and mission support, the CIO initiated a strategic planning session for his senior staff. This session was held in May 1999, and produced a draft CIO 500 Day Plan. This plan identifies the CIO

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goals to be attained in the next 500 days. For each CIO goal, a strategic intent, objectives, milestones and performance measures were developed. The plan identifies how the CIO goals and objectives are linked to the USTRANSCOM Strategic Objectives.

Resident in our improving strategic and business planning process, is a more robust assessment of the impact of Information Technology funding decisions. Our CPRP critically assesses the strategic impact of each Information Technology initiative prior to recommending its inclusion in USTRANSCOM's POM submission.

**d. Capital Investment activities**

In order to obtain the visibility of the Transportation Component Command (TCC)/Service IT Budgets as well as the expenditures on HQ USTRANSCOM C4S, the CIO co-chairs the CIO Program Review Panel (CPRP) with TCJ3/J4. There are three CPRPs every year. The fall panel produces a strategic assessment and validation of emerging initiatives. The spring panel recommends POM actions and all major TWCF IT requirements are reviewed with funds redistributed to mission critical requirements. The programs are briefed by a functional proponent with technical personnel available to address technical issues. The summer CPRP session discusses Command and Control Initiatives Program (C2IP) candidates and prioritizes the list for the Joint Staff.

**e. Performance measurement activities.**

USTRANSCOM conducted a Metric Workshop, 16-17 November 1998. The goal of the workshop was to develop a few high-level metrics that track the vital signs of the CIO organization. The following draft CIO metrics were identified: Operational Reliability/Readiness of DTS Systems, IRM Strategic Plan Milestones, Tracking IT Investments, Defensive Information Management, Compliance to the Enterprise Architecture Standards, and Communications Infrastructure

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supporting the DTS pipeline. At the May 1999 CIO Strategic Planning session, these metrics were refined to include the following: the Global Transportation Network (GTN) System Health, GTN Availability versus the Operational Requirements Document (ORD), Global Command and Control System (GCCS) and Unclassified-Office Information System (U-OIS) Reliability, Computer Network Incidents, Overall Compliance to the DTS Technical Architecture and the compliance level per component, 500 Day Plan Milestone Accomplishments, Military and Civilian Vacancies and time to fill positions, and Top Five Resource Intensive IT Programs. The CIO Support Team is developing a process to collect and report this information.

At a more detailed level, the CIO 500 Day Plan indicates a performance measure for each milestone in the document. These measures will be tracked to ensure the milestones are on-target.

The CIO also enforces measurement expectations through the configuration management review process. IT program managers will own, conduct, and manage the performance measurements aspects of their individual IT programs; they will subsequently report their results to the CIO. These measurements should be an integral part of the Mission Need Statement (MNS) which describes what "success" will look like when the need has been satisfied. This is a customer-focused approach in which the user of the IT will create and take ownership of these measures and, ultimately, track and report on system performance when the initiative is fielded. As the acquisition phase begins, the program manager will convert the "requirements" outcome measures to specific cost, schedule, and performance output measures for vendor guidance and eventual test and acceptance criteria. USTRANSCOM leadership will use the resulting data to calibrate their strategic goals and to share lessons in a best practice mode.

f. Administrative

Changes from the FY99 President Budget are inclusion of the following programs: Advance Computer Flight Planning

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(ACFP), Airlift Prototype Team – Mgmt Reform Initiative (MRM #15), Automated Identification Technology (AIT), Automated System for Transportation Data (AUTOSTRAD 2000), Consolidated Air Mobility Planning System (CAMPS), Global Command and Control System (GCCS), Information Assurance/Information Protection Security Architecture (IA/IP), Integrated Command, Control & Communication TRANSCOM System (IC3), System Integration, Joint Mobility Control Group (JMCg), Local Area Network (LAN) Activities – TRANSCOM, Objective Wing Command Post (OWCP), and SATCOM (L-Band).

New programs included in this budget are Advance Shipping Notice (ASN) and Command C4S. Business Decision Support System (BDSS), Electronic Record Management Systems (ERMS), Defense Transportation Regulation (DTR), and Logbook are combined in the Other category of the IT-1.

**VII. Y2K Accomplishments**

**Air Mobility Command**

AMC has made significant progress in preparing for Y2K through the use of specific Y2K-oriented funding. We have tested our critical information systems to ensure they will properly operate in the year 2000. We have provided Y2K diagnostic tools to all our base network operations centers. We have funded contracts to provide specialists to help our bases and en-routes with testing embedded infrastructure chips and analyzing their Continuity of Operations Plans (COOPs). We have funded upgrades and replacements for non-compliant critical infrastructure items at our bases. We have flight-tested all our airframes to ensure they will properly operate in the year 2000. We have funded our independent verification and validation contractor through March 2000 to ensure any changes to our information systems will maintain their Y2K compliance. We are continuing to look for additional opportunities to improve our ability to meet the Y2K challenge through the use of these funds.

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**Military Sealift Command**

MSC met DoD Y2K requirements by 30 Jun 99. MSC analyzed/upgraded hardware and software completed contingency plans and Y2K compliance certifications. Y2K examination of Information Technology (IT) requirements scrutinized and specified hardware and software to be supported. Y2K tests assisted in identifying unanticipated issues and reducing level of risk. Coordination on Y2K memorandums of agreement defined external interfaces. Extensive quality assurance (QA) and operational evaluations (OPEVAL) continues to ensure MSC operational system is not adversely affected by Y2K problem and that no mission critical failures occurs on significant Y2K dates. Resources applied to Y2K efforts validate assets, facilitate configuration management (CM) and transition to software release management (RM).

**Military Traffic Management Command**

MTMC achieved Y2K Level 2 certification for all mission critical and non-mission critical automated information systems. Defense Joint Accounting System (DJAS) is currently in the analysis and design phase and will be developed Y2K compliant. Intransit Visibility (ITV) funded systems – Asset Management System (AMS), Integrated Computerized Deployment System (ICODES), and Integrated Booking System (IBS) – were certified Jan 99. Conus Freight Management (CFM) and Transportation Operational Personal Property Standard System (TOPS) were Level 2 certified in Dec 98 and Mar 99 respectively. Worldwide Port System (WPS) implementation will take until end of May 99 but certification was accomplished Jan 99.

**USTC-HQ**

All 30 USTRANSCOM and component command mission critical systems are certified level 1 or 2 Y2K compliant. In the last quarter, two non-mission critical systems, AMC's ASIFICS and MSC's UCPS (Ashore), were certified, for a total of 82 of 86

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(95%) non-mission-critical systems certified. Two of the remaining four systems (APES, DMRIS) were certified in late summer 1999. FIDS and MPIDS should be certified in mid-September 1999.

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	FY1999	FY2000	FY2001	FY2002
<b>Grand Total</b>				
Development Modernization	334,855	317,113	352,900	358,833
Current Services	180,447	160,722	178,350	182,164
	154,408	156,391	174,550	176,669
<b>Major</b>				
Development Modernization	90,634	88,268	96,998	94,836
Current Services	60,141	59,099	65,621	60,779
	30,493	29,169	31,377	34,057
<b>Non-Major</b>				
Development Modernization	226,521	209,466	233,026	241,627
Current Services	116,457	98,041	106,066	115,768
	110,064	111,425	126,960	125,859
<b>All Other</b>				
Development Modernization	17,700	19,379	22,876	22,370
Current Services	3,849	3,582	6,663	5,617
	13,851	15,797	16,213	16,753

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	FY1999	FY2000	FY2001	FY2002
<u>Functional Area Applications</u>				
<b>COMMAND AND CONTROL</b>				
	276,296	260,137	277,397	286,846
	<b>195,218</b>	<b>175,016</b>	<b>187,290</b>	<b>195,410</b>
<b>Major</b>				
<b>COMMAND &amp; CONTROL INFORMATION</b>	81,582	78,506	84,917	83,785
<b>PROCESSING SYSTEM</b>	40,329	34,383	38,178	40,989
<i>Development Modernization</i>				
DWCF Capital	20,771	18,460	19,702	20,000
DWCF Capital	20,771	18,460	19,702	20,000
<i>Current Services</i>				
DWCF Operations	19,558	15,923	18,476	20,989
DWCF Operations	19,558	15,923	18,476	20,989
<b>GLOBAL COMMAND AND CONTROL SYSTEM</b>				
<i>Development Modernization</i>	4,472	3,467	3,502	3,457
DWCF Capital	3,035	1,935	1,965	1,920
DWCF Capital	3,035	1,935	1,965	1,920
<i>Current Services</i>				
DWCF Operations	1,437	1,532	1,537	1,537
DWCF Operations	1,437	1,532	1,537	1,537
<b>GLOBAL TRANSPORTATION NETWORK</b>				
<i>Development Modernization</i>	36,781	40,656	43,237	39,339
DWCF Capital	28,819	30,765	34,459	31,199
DWCF Capital	28,819	30,765	34,459	31,199

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	FY1999	FY2000	FY2001	FY2002
<i>Current Services</i>				
DWCF Operations	7,962	9,891	8,778	8,140
	7,962	9,891	8,778	8,140
 Non-Major				
<b>GLOBAL AIR TRANSPORTATION EXECUTION</b>				
<b>SYSTEM</b>				
<i>Development Modernization</i>	74,674	55,852	60,904	75,081
DWCF Capital	25,745	16,014	22,272	27,052
<i>Current Services</i>				
DWCF Operations	18,219	7,026	11,743	15,977
	18,219	7,026	11,743	15,977
<i>Current Services</i>	7,526	8,988	10,529	11,075
DWCF Operations	7,526	8,988	10,529	11,075
 <b>GLOBAL DECISION SUPPORT</b>				
<b>SYSTEM/MULTI-LEVEL SECURITY</b>				
<i>Development Modernization</i>	10,511	14,340	13,424	19,178
DWCF Capital				
<i>Current Services</i>	3,273	6,675	5,975	10,486
DWCF Capital	3,273	6,675	5,975	10,486
<i>Current Services</i>	7,238	7,665	7,449	8,692
DWCF Operations	7,238	7,665	7,449	8,692
 <b>INTEGRATED COMMAND ENVIRONMENT</b>				
<i>Development Modernization</i>	38,418	25,498	25,208	28,851
DWCF Capital	13,453	6,569	5,494	5,622
<i>Current Services</i>	13,453	6,569	5,494	5,622
DWCF Operations	24,965	18,929	19,714	23,229
	24,965	18,929	19,714	23,229

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<b>All Other</b>				
<b>ALL OTHER (FAA) COMMAND AND CONTROL</b>				
<i>Development Modernization</i>	38,962	40,658	41,469	36,544
DWCF Capital	38,962	40,658	41,469	36,544
<i>Current Services</i>	21,572	18,259	17,225	14,858
DWCF Operations	21,572	18,259	17,225	14,858
	17,390	22,399	24,244	21,686
	17,390	22,399	24,244	21,686
<b>FINANCE</b>	<b>6,140</b>	<b>8,534</b>	<b>9,770</b>	<b>8,913</b>
<b>Major</b>				
<b>DEFENSE JOINT ACCOUNTING SYSTEM</b>				
<i>Development Modernization</i>	600	1,500	2,800	1,600
DWCF Capital	600	1,500	2,800	1,600
<i>Current Services</i>	600	1,500	2,500	1,200
DWCF Operations	600	1,500	2,500	1,200
	0	0	300	400
	0	0	300	400
<b>All Other</b>				
<b>ALL OTHER (FAA) FINANCE</b>	<b>5,540</b>	<b>7,034</b>	<b>6,970</b>	<b>7,313</b>
<i>Development Modernization</i>	<b>5,540</b>	<b>7,034</b>	<b>6,970</b>	<b>7,313</b>
DWCF Capital	<b>1,280</b>	<b>2,582</b>	<b>2,436</b>	<b>2,565</b>
<i>Current Services</i>	<b>1,280</b>	<b>2,582</b>	<b>2,436</b>	<b>2,565</b>
DWCF Operations	<b>4,260</b>	<b>4,452</b>	<b>4,534</b>	<b>4,748</b>
	<b>4,260</b>	<b>4,452</b>	<b>4,534</b>	<b>4,748</b>

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	FY1999	FY2000	FY2001	FY2002
<b>LOGISTICS</b>				
Non-Major				
<b>AUTOMATED IDENTIFICATION TECHNOLOGY</b>				
<i>Development Modernization</i>				
DWCF Capital	74,938	76,587	80,337	82,523
<i>Current Services</i>	61,988	63,183	65,902	68,496
DWCF Operations	2,100	700	3,200	3,200
	2,100	700	2,700	2,700
	2,100	700	2,700	2,700
	0	0	500	500
	0	0	500	500
<b>CONUS FREIGHT MANAGEMENT SYSTEM</b>				
<i>Development Modernization</i>				
DWCF Capital	13,319	12,566	12,129	13,129
<i>Current Services</i>	12,153	11,000	9,800	8,650
DWCF Operations	12,153	11,000	9,800	8,650
	1,166	1,566	2,329	4,479
	1,166	1,566	2,329	4,479
<b>CORE AUTOMATED MAINTENANCE SYSTEM</b>				
<i>Development Modernization</i>				
DWCF Capital	11,208	9,407	9,497	11,134
<i>Current Services</i>	2,430	2,058	2,108	2,650
DWCF Operations	2,430	2,058	2,108	2,650
	8,778	7,349	7,389	8,484
	8,778	7,349	7,389	8,484

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	FY1999	FY2000	FY2001	FY2002
<b>INTRANSIT VISIBILITY</b>				
<i>Development Modernization</i>	11,699	17,211	16,273	19,083
DWCF Capital	8,921	13,442	12,371	14,360
<i>Current Services</i>	8,921	13,442	12,371	14,360
DWCF Operations	2,778	3,769	3,902	4,723
	2,778	3,769	3,902	4,723
<b>TRANSPORTATION OPERATIONAL PERSONAL</b>				
<b>PROPERTY STANDARD SYSTEM</b>	12,787	12,794	12,948	10,445
<i>Development Modernization</i>	4,001	6,534	6,028	5,328
DWCF Capital	4,001	6,534	6,028	5,328
<i>Current Services</i>	8,786	6,260	6,920	5,117
DWCF Operations	8,786	6,260	6,920	5,117
<b>WORLDWIDE PORT SYSTEM</b>	10,875	10,505	11,855	11,505
<i>Development Modernization</i>	4,595	3,505	4,855	4,505
DWCF Capital	4,595	3,505	4,855	4,505
<i>Current Services</i>	6,280	7,000	7,000	7,000
DWCF Operations	6,280	7,000	7,000	7,000
<b>All Other</b>				
<b>ALL OTHER (FAA) LOGISTICS</b>	12,950	13,404	14,435	14,027
<i>Development Modernization</i>	12,950	13,404	14,435	14,027
DWCF Capital	8,983	10,833	11,829	11,383
DWCF Operations	8,983	10,833	11,829	11,383

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	FY1999	FY2000	FY2001	FY2002
<i>Current Services</i>				
DWCF Operations	3,967	2,571	2,606	2,644
	3,967	2,571	2,606	2,644

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<u><i>Communications and Computing Infrastructure</i></u>	42,775	42,575	52,548	49,855
<b>DEPLOYABLE/TACTICAL/SHIPBOARD COMMUNICATIONS</b>	<b>7,662</b>	<b>7,253</b>	<b>7,876</b>	<b>8,751</b>
Major	7,662	7,253	7,876	8,751
THEATER DEPLOYABLE COMMUNICATIONS	7,662	7,253	7,876	8,751
Development Modernization	6,126	5,430	5,590	5,760
DWCF Capital	6,126	5,430	5,590	5,760
Current Services	1,536	1,823	2,286	2,991
DWCF Operations	1,536	1,823	2,286	2,991
<b>OTHER COMMUNICATION INFRASTRUCTURE ACTIVITIES</b>	<b>28,686</b>	<b>27,148</b>	<b>34,561</b>	<b>30,109</b>
Major	790	1,009	1,405	700
COMMON OPERATING ENVIRONMENT	790	1,009	1,405	700
Development Modernization	790	1,009	1,405	700
DWCF Capital	790	1,009	1,405	700
Non-Major	27,896	26,139	33,156	29,409
COMMAND C4S	27,896	26,139	33,156	29,409
Development Modernization	2,170	0	0	0
DWCF Capital	2,170	0	0	0

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	FY1999	FY2000	FY2001	FY2002
<i>Current Services</i>				
DWCF Operations	25,726	26,139	33,156	29,409
	25,726	26,139	33,156	29,409
<b>OTHER APPLICATIONS PROCESSING</b>	<b>6,427</b>	<b>6,024</b>	<b>7,061</b>	<b>7,945</b>
<b>All Other</b>				
<b>ALL OTHER (CCD) COMP. INFRASTRUCTURE</b>				
(REF. B3D)				
<i>Development Modernization</i>				
DWCF Capital	4,375	3,517	4,518	5,330
	4,375	3,517	4,518	5,330
<i>Current Services</i>	2,052	2,507	2,543	2,615
DWCF Operations	2,052	2,507	2,543	2,615
<b>OTHER IA PURCHASE &amp; INTEGRATION</b>	<b>0</b>	<b>2,150</b>	<b>3,050</b>	<b>3,050</b>
<b>All Other</b>				
<b>ALL OTHER (CCD) IS/IA RESOURCES</b>				
<i>Development Modernization</i>				
DWCF Capital	0	2,150	3,050	3,050
	0	2,150	3,050	3,050
<i>Current Services</i>	0	1,300	2,200	2,200
DWCF Operations	0	1,300	2,200	2,200
	0	850	850	850
	0	850	850	850

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<u>Related Technical Activities</u>				
<b>TECHNICAL ACTIVITIES</b>				
Non-Major				
SYSTEM INTEGRATION				
Development Modernization				
DWCF Capital	15,784	14,401	19,934	19,111
Current Services	15,784	14,401	19,934	19,111
DWCF Operations	15,784	14,401	19,934	19,111
	15,784	14,401	19,934	19,111
	15,784	14,401	19,934	19,111
	12,781	7,623	10,447	11,771
	12,781	7,623	10,447	11,771
	3,003	6,778	9,487	7,340
	3,003	6,778	9,487	7,340

**IT-1 Report**

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**UNCLASSIFIED**  
**DEPARTMENT OF DEFENSE**  
**U.S. Transportation Command**  
**Information Technology Resources Totals by Appropriation**  
**FY2001**

(Dollars in Thousands)

Appropriation	FY1999	FY2000	FY2001	FY2002
<b>Total</b>	<b>334,855</b>	<b>317,113</b>	<b>352,900</b>	<b>358,833</b>
DWCF Capital	180,447	160,722	178,350	182,164
DWCF Operations	154,408	156,391	174,550	176,669

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**DEPARTMENT OF DEFENSE  
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FY2001 BUDGET ESTIMATE SUBMISSION**

**Description Information:**

Initiative Name and Acronym: Command and Control Information Processing System (C2IPS)  
Initiative Number: 0397

Project Activity/Mission Area: (IT/ DII Framework Category) JTA Compliant and Level 5 DII COE  
Date Project was initiated: IOC was reached in 1992  
Date of Last Acquisition Decision Memorandum (ADM): 1993  
Project is in III Milestone, Approval Dated: 1993, M Phase as of current review.

Project Status:      New ☐      Ongoing ☒

Information Technology Project:

Yes ☒ No ☐

Is this project a financial management system?

Yes ☐ No ☒

If yes, what percentage is financial \_\_\_\_\_ %

Current Year 2000 Phase: Certified (As new software loads are developed, they are validated and certified)

Year 2000 System Status as of August 26, 1999 (non-compliant, compliant, funding available): Compliant

Projected Date for Completion: N/A

Mission Critical Status: I (Mission Critical)

Standard System Status: Production / Fielding

Organizational Information/Program Manager: Maj Vernoris L. Johnson

HQ AMC/SCPC, Scott AFB IL 62225

**DEPARTMENT OF DEFENSE  
UNITED STATES TRANSPORTATION COMMAND  
FY2001 BUDGET ESTIMATE SUBMISSION**

**Part I. Summary of Spending for Project Stages:**

Project Name and Acronym: Command and Control Information Processing System (C2IPS)  
Project Activity/Mission Area: Pursuing (IT/ DII Framework Category) JTA and Level 5 DII COE Compliance

	Dollars in Millions						Total
	Cum total FY1999 and prior	FY2000	FY2001	FY2002	FY2003	Cum total FY2004 through FY2005	
<b>Planning</b>							
APPN or Fund 1 to n Dev Mod	0	0	0	0	0	0	0
<b>Total Dev Mod</b>	0	0	0	0	0	0	0
<b>Full Acquisition</b>							
APPN or Fund 1 to n Dev Mod	50.639	20.771	18.460	19.702	20.000	78.271	207.783
<b>Total Dev Mod</b>	50.639	20.771	18.460	19.702	20.000	78.271	207.783
<b>Current Services/Maintenance</b>							
APPN or Fund 1 to n Current Service	43.943	19.558	15.923	18.476	20.989	66.762	185.651
<b>Total Current Service</b>	43.943	19.558	15.923	18.476	20.989	66.762	185.651
<b>Total Resources by FY</b>	94.582	40.329	34.383	38.118	40.989	145.033	393.434

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**Part II. Justification:  
Provide Requested Justification Materials**

**A. Description/Performance Characteristics:**

The overall objective of C2IPS is to improve AMC's command and control capability at all echelons and phase out the manual paper/greaseboard/telephone environment at wing level units, including ANG and ARC units. C2IPS provides a centralized "electronic greaseboard" capability for each functional area in the Airlift Wings and Airlift Squadrons. During contingencies and real world deployments, the system directly supports the Commander Mobility Forces using Tanker Airlift Control Elements, and Deployed Tanker Airlift Control Centers (DTACC). C2IPS provides automated tools to track tanker airlift, distribute messages, as well as aids to assist the decision making process. The system extends automated command and control capabilities to field units and interfaces with other key AMC C2 systems. System development contract was rebaselined to provide system redesign to a client-server architecture in software increment 3.0a. The client-server architecture provides improved system performance, flexibility and supportability. Burn-in testing of the new system began in Jan 99 with an approved Fielding Decision given in Jun 99. Fielding is expected to continue through May 00.

Unit Level Planning and Scheduling (ULP&S) is a new module in C2IPS. It provides the units with automated aircrew scheduling, mission building, and Operational Risk Management (ORM) capabilities. ULP&S expands upon C2IPS' current mission building capabilities and makes use of the new client-server architecture. ULP&S Initial Operational Capability (IOC) is scheduled for Mar 00.

**B. Program Management/Management Oversight:**

ESC/GAM, C2IPS System Program Director at Hanscom AFB, MA has overall acquisition management responsibility during the development and production phases. HQ AMC/SCPC at Scott AFB, IL has responsibility for fulfilling the customer's requirements. The functional user (customer) is HQ AMC/DOO.



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**C. Contract Information:**

Computer Sciences Corporation (CSC), Integrated Systems Division, Moorestown, NJ. Following the development effort on the C2IPS program, the maintenance effort transitioned from a Firm-Fixed Price (FFP) effort to a Time and Materials (T&M) contract. A follow-on Software Maintenance and Integration Task was competitively awarded to CSC under the DISA DEIS II contract, to continue the C2IPS effort.

Unisys Corporation, Fairview Heights, IL. Workload for the development of the Unit Level Planning and Scheduling module was competed as a task order under the DISA DEIS II contract. Unisys' team was selected from amongst four bidders.

**D. Architecture and Infrastructure Standards:**

C2IPS is actively working on a migration that will achieve DII COE Level 7 compliance. We currently plan to meet Level 5 compliance standards in FY00.

The C2IPS program office is postured to incorporate the applicable DISA Joint Technical Architecture (JTA) standards into the program architecture. HQ AMC and ESC and regularly coordinates with the CSC/ESC to identify and update the list of standards followed.

**E. Program Highlights:**

Client/Server Fielding  
C2IPS is well underway in transitioning from the original Legacy system to Client/Server (C/S) architecture. This new architecture allows more flexibility in distribution of the system with reduced System Administration overhead. The C/S began burn-in tests at Dover AFB in Jan 99. A Fielding Decision was made in Jun 99. By the end of FY99, C2IPS C/S will be 50% fielded. Fielding is planned to go through May 00.  
C2IPS Web Server

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The C2IPS Web Application, designed and developed by AMC/SCPC, is now fielded with the client-server upgrade. The current software version being used in the field is 3.0.4. Work is progressing on a limited write capability for the Web Application. This will allow users to submit arrival and departure times as well as remarks. The purpose is to reduce the workload on the C2IPS client application and the necessity to have a full-blown client when the user only requires minimal functions. Users are able to use the Web Application instead of a full C2IPS client station. The Web Application is also being used to test new functionality prototypes for C2IPS.

**Operational Testing**

AMC Systems Integration Testing (SIT) has been completed for C2IPS through version 3.2.1.0. The Y2K package for this version is currently in coordination. C2IPS version 3.2.2.0 is currently undergoing SIT and will participate in USTRANSCOMs Y2K Operational Evaluation in Oct 99.

**Financial Basis for Selecting the Project:** N/A, Program is currently in Production Fielding/Deployment and Operational Support.

	Dollars in Millions					
	Program Year 1	Program Year 2	Program Year 3	Program Year 4	Program Year 5	Program Year - N
APB Total Resources by FY	0	0	0	0	0	0
Rebaseline Total Resources by FY	0	0	0	0	0	0

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**Part III. Cost, Schedule, and Performance Goals:**

**A. Description of Performance based system(s):**

- **Baseline Information:** Funding level listed in Part I and in the Previous Balance below represents the results of funding cut received due to a FY98 Corporate Board review which mandated a reduction to fund higher priority programs in POM. This cut includes \$5.0M in FY99 and \$6.5M in FY00, which was returned in FY03 and 02, respectively. Part I also reflects a FY99 Corporate Board cut of \$2.5M in FY00, \$4.0M in FY01, and \$10.9M in FY02.
- A recent funding restructure to support a new, higher priority program is currently in the approval stage. It will reduce the budget by \$2.6M in FY00 and \$1.5M in FY01. These cuts are not reflected in Part I or below.

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	Cum total FY1999 and prior	FY2000	FY2001	FY2002	FY2003	Cum total FY2004 through FY2005	Total
<b>B. Previous Balance:</b>							
Cost Goals (\$M)	94.582	34.466	40.195	43.472	51.921	145.033	409.669
Schedule Goals (milestones)	0	PFD&OS	0	0	0	0	0
<b>C. Baseline:</b>							
Cost Goals (\$M)	94.582	39.466	46.695	43.472	45.421	140.033	409.669
Schedule Goals (months)	0	PFD&OS	0	0	0	0	0
<b>D. Current Estimate:</b>							
Cost Goals (\$M) *	94.582	39.466	46.695	43.472	45.421	140.033	409.669
Schedule Goals (months)	0	PFD&OS	0	0	0	0	0
<b>E. Variance from Baseline Goals:</b>							
Cost Goals (\$M)	0	0	0	0	0	0	0
Schedule Goals (months)	0	0	0	0	0	0	0

\* With the cuts described above and our spending goal remaining at the baseline level, C2IPS is will incur dollar shortfalls in the following amounts: \$11.600M in FY00, \$5.500M in FY01, and \$4.432M in FY02. FY03 is expected to have \$5.000M above the baseline due to the return of funding taken in FY99 and FY00 from the first Corporate Board. Requirements such as technology refresh and DI/COE compliance will be pushed back to support the new funding profile.

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**F. Corrective Actions:** N/A, This system is operational and compliant

**Schedule Goals:** N/A, This system is operational and compliant

Milestones

Baseline (Milestone) Schedule	Last President's Budget (Month Year)	Achieved	Current Submission (Month Year)
Program is now in Production Fielding/Deployment and Operational Support phase.	0	0	0

**Performance Goals:** N/A, This system is operational and compliant

**G. Year 2000 Special Information:**

**Y2K Phase**

	Previous President's Budget	Current Submission
Date of Accomplishment	.063	0
Funding Estimate by Phase	0	0
Estimate time that for full Y2K Compliance	31 Jan 99	N/A

**Y2K Testing**

The following software loads have been tested and found to be Y2K compliant by HQ AMC/CV on the indicated dates:  
 Legacy, increment 2D, certified 01 Feb 99.  
 Client-Server, version 3.2.0.0, certified 21 May 99.  
 Client-Server, version 3.2.1.0, currently Y2K package in coordination for signature.  
 Client-Server, version 3.2.2.0, currently in SIT testing. No defects found to date. Expect Y2K certification by 20 Sep 99. Will then be part of USTRANSCOMs Y2K Operational Evaluation C in Oct 99.

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**Description Information:**

Initiative Name and Acronym: Global Transportation Network (GTN)  
Initiative Number: 0886  
Project Activity/Mission Area: GTN, Command and Control  
Date Project was initiated: 23 March 1995  
Date of Last Acquisition Decision Memorandum (ADM): March 1997, reviewed 10 August 1998  
Project is in II Milestone, Approval Dated: March 1997, Engineering and Management Development Phase and currently supporting limited operations as of current review.

Project Status:      New ☐      Ongoing ☒

**Information Technology Project:**

Is this project a financial management system?

Yes ☒ No ☐  
Yes ☐ No ☒

If yes, what percentage is financial \_\_\_\_\_ %

Current Year 2000 Phase: Certified Y2K level 2a compliant.

Year 2000 System Status as of August 20, 1999 (non-compliant, compliant, funding available): Compliant

Projected Date for Completion: Certified 10 December 1998

Mission Critical Status: I (Mission Critical)

Standard System Status: Production

Organizational Information/Program Manager: Colonel Ronald F. Casey (DSN 576) 618-256-2866; Fax: Ext. 6460

Address: USTRANSCOM/GTNPMPMO

508 Scott Drive

Scott AFB IL 62225-5357

0886/Global Transportation Network (GTN) – IT Capital Investment Exhibit (IT-300b)

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**Part I. Summary of Spending for Project Stages:**

Project Name and Acronym: Global Transportation Network (GTN)  
Project Activity/Mission Area: GTN, Command and Control

	Dollars in Millions						
	Cum total FY1999 and prior	FY2000	FY2001	FY2002	FY2003	Cum total FY2004 through FY2005	Total
<b>Planning</b>							
APPN or Fund 1 ton- Dev Mod	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Dev Mod	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Full Acquisition</b>							
APPN or Fund 1 to - n Dev Mod	\$141.815	\$28.819	\$30.765	\$34.459	\$31.199	\$98.656	\$365.713
Total Dev Mod	\$141.815	\$28.819	\$30.765	\$34.459	\$31.199	\$98.656	\$365.713
<b>Current Services/Maintenance</b>							
APPN or Fund 1 to n-Current Service	\$ 15.674	\$ 7.962	\$ 9.891	\$ 8.778	\$ 8.140	\$26.518	\$ 76.963
Total Current Service	\$ 15.674	\$ 7.962	\$ 9.891	\$ 8.778	\$ 8.140	\$26.518	\$ 76.963
<b>Total Resources by FY</b>							
	\$157.489	\$36.781	\$40.656	\$43.237	\$39.339	\$125.174	\$442.676

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**Part II. Justification:**

**A. Description/Performance Characteristics:**

The Global Transportation Network provides the automated command and control support necessary for USTRANSCOM to carry out its mission to provide global transportation management for the Department of Defense (DOD). GTN will also provide USTRANSCOM's customers with the transportation information they need to manage their logistics situation. To do so, GTN will integrate supply, cargo, forces, passenger, and patient requirements and movements with airlift, air refueling, aeromedical, and sealift schedules and movements. In addition to making this integrated data available to USTRANSCOM's customers, the NCA, JCS, and Unified CINCs, GTN will pass the information to the Global Command and Control System (GCCS) and the Joint Operation Planning and Execution System (JOEPES). GTN also implements the USTRANSCOM chartered tasking to provide for deployment-related ADP systems integration and to provide centralized oversight of traffic management in peace and war. GTN is included in the Transportation Working Capital Fund (TWCF) and provides Intransit Visibility (ITV) required in OSD's Total Asset Visibility (TAV) program. Full Operational Capability (FOC) objective Sep 02, Threshold Mar 03. An amended Life Cycle Cost/Benefit Analysis was completed in Mar 97 and reflected hard savings, cost avoidances, and estimated non-quantifiable benefits of \$2.356 billion.

The mission relates directly to USTRANSCOM's Strategic Goals and Supporting Objectives which include Goal 3; "Provide a Defense Transportation System that is fully integrated, efficient, effective, and customer-focused" and Goal 3.2 "Develop and employ an integrated command and control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR) system providing information superiority throughout the DTS."

Multiple prototype versions of GTN were developed by Computer Sciences Corporation (CSC). The GTN operational prototype was on-line and used worldwide by the Office of the Secretary of Defense, Air Mobility Command and its units, Military Traffic Management Command and its units, Military Sealift Command and its units, Defense Logistics Agency, Air Force Materiel Command, and all theater CINCs. The GTN Development Contract was subsequently awarded in March 1995.

0886/Global Transportation Network (GTN) – IT Capital Investment Exhibit (IT-300b)

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Following DESERT SHIELD/DESERT STORM, severe shortcomings in the Defense Transportation System were identified. In June and July 1993, conferences were held that initially determined the type of benefits that would be derived. These conferences were attended by active practitioners in each of the fields involved (e.g., operational commanders, requisitioners, suppliers, and transportation managers). At those meetings, anecdotal evidence from DESERT SHIELD/DESERT STORM and other operations was introduced and discussed. Participants discussed situations that had occurred and then described how they might have been handled differently if the capabilities of GTN had been available. The participants constructed detailed estimates of specific benefits and estimated the dollar value of each. For non-quantifiable benefits, the participants estimated the value in relation to the quantified benefits. Then, an estimate of the total benefit was constructed. Later research was focused on verifying those estimates and organizing them in the resulting Life Cycle Cost/Benefit Analysis (LCC/BA), dated January, 1995. This LCC/BA was amended in March, 1997.

**B. Program Management/Management Oversight:**

Program Manager: Colonel Ronald F. Casey, USTRANSCOM/TCJ6-GTNPMO

Program Executive Officer: Mr. Oscar Goldfarb, AFPEO/LI

Contract Office: HQ AMC/LGCFD, 108 E. Martin St, Rm 216, Scott AFB IL 62225-5015  
GTN uses Integrated Product Teams.

**C. Contract Information:**

Contract F19628-95-C-0029, Development of the Global Transportation Network; Prime contractor Lockheed Martin Mission Systems, 9255 Wellington Road, Manassas VA 22110-4121

The GTN Development contract was awarded in March 1995 as a Cost Plus Award Fee (CPAF), with a smaller portion for hardware that was Firm Fixed Price (FFP). There is a clause in the contract to convert CPAF portion to fixed price if necessary. Air Force Acquisition Regulation Supplement Appendix AA, Formal Source Selection for Major Acquisitions, was used. Market research was

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accomplished through Commerce Business Daily, vendor conferences, and a draft Request for Proposal through Electronic Systems Center bulletin board. Source Selection evaluation criteria and best value analysis was performed during contract evaluation, and Unisys (Now Lockheed Martin Mission Systems) was awarded the contract. The Tech, Cost & Delivery Performance evaluation categories for award fee consideration weighs Requirements Definition/Satisfaction, Management, Systems Engineering, System Design/Architecture, Test & Integration, Contracting and Cost Control, and delivery performance.

**D. Architecture and Infrastructure Standards:**

GTN has been developed to meet the requirements specified in the DOD Joint Technical Architecture (JTA) to the greatest extent possible. This document specifies technical implementations in order to support architectural goals. One of the major standards specified in the JTA is the Defense Information Infrastructure Common Operating Environment (DII COE). Compliance with this standard must be viewed from both a client and server perspective. GTN has been developed to allow users to gain access to GTN data via any DII COE approved World Wide Web (WWW) browser. Modifications to the GTN system will be made as required to maintain operability with upgrades to DII COE compliant browser(s). GTN does not have any other client software.

GTN server environments include both Digital Equipment Corporation (DEC) Unix and Solaris platforms. The COE compliance is not planned for the DEC server platforms. An initial analysis has been performed by the Global Transportation Network Program Management Office (GTNPMO) with input from the contractor to determine the feasibility of achieving COE compliance in the GTN DEC server domain. Indications are that the costs (in excess of 20 million dollars) associated with retrofitting the GTN system to be DII COE compliant weighed against the benefit derived for DOD does not justify the expenditure of resources to complete these activities. The most prudent and effective course of action for DII COE compliance, as it relates to GTN, is to pursue DII COE compliance for segments to be deployed external to the core GTN processing environment. The GTN Solaris platforms will continue to be evaluated for COE compliance as the COE includes versions of COTS products used on that platform. For example, the web servers currently use Solaris 2.6. This version of Solaris is not slated for segmentation

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Hardware requirements are included in the funding.

GTN transport requirements are met by the Defense Information Systems Network (DISN). Specifically, GTN unclassified transport requirements are met by the Non-secure Internet Protocol Router Network (NIPRNET). GTN classified transport requirements are met by the Secret Internet Protocol Router Network (SIPRNET). Additionally, GTN utilizes leased commercial circuits to augment critical communications requirements.

GTN is dependent upon base level infrastructure requirements to the extent that GTN users must have access to either the NIPRNET or SIPRNET.

GTN has been developed using COTS products primarily. Some custom components have been used where COTS products were not available. The predominant purposes of custom code have been transaction processing and system management functions (i.e., scripts designed to assist System Operators and Administrators to manage the system).

**E. Program Highlights:**

The number one priority for the program is rebuilding the GTN database. The new database will be well-documented, provide improved performance and maintainability, and provide greater capacity for future development. Significant work has been accomplished on mapping the logical data model with the Transportation Logical Data Model. This key step will allow GTN database to become standardized in accordance with DOD directives. Initial efforts to reverse engineer the present database failed. The current schedule expects the delivery of the first portion of the database in Jun 00 with additional aspects completed by Nov 00. Also, we recently began work on a parallel project to provide improved query capability that will complete in the same time frame.

During the FY01-05 POM submission USTRANSCOM approved additional application funding in the years FY02-05. This added funding for continued improvements to GTN totaled over \$94M over the POM. This will provide greater dimension to the program

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and assure the viability to customer requirements for the distant future. An increase to the Acquisition Program Baseline (APB) will be required if the POM increases are approved in the budget.

GTN Year 2000 (Y2K) project was completed as planned with the final Operational Evaluation scheduled for 18 Oct 99. Certification requirements were met on 4 Dec 98, and the certification document signed by BGen Jones (USTRANSCOM/J6) on 10 Dec 98.

The PMO recently responded to a no-notice request for additional Command and Control (C2) capability. The C2 Report was a tremendous success which led to the demand for additional products. To date the PMO delivered 4 additional releases to improve the current C2 reporting.

Currently Lockheed Martin and the PMO are working to deliver several products before the Y2K lockdown on 24 Sep 99. During the Jun-Sep 99 timeframe we plan to deliver over 40 releases to add new functionality to GTN. This includes software upgrades and fixes, new and upgraded interfaces and several new reports.

**F. Financial Basis for Selecting the Project: (BY98\$ - APB Threshold)**

The findings in the March 1997 LCC/BA reflect hard cost savings of \$1.372 billion, constant FY97 dollars. Cost avoidance account for another estimated \$199 million, constant FY97 dollars. Expert opinion valued the non-quantifiable benefits to be worth about one-half the cost savings and avoidance attributable to GTN: \$785 million, constant FY97 dollars. Hard savings, cost avoidance, and estimated non-quantifiable benefits total \$2.356 billion. The discounted benefit to cost ratio (BCR) for the preferred alternative was 5.77 to 1. Therefore, for each dollar spent on requirements, \$5.77 of benefits will be accrued over the life of GTN.

The initial Acquisition Program Baseline (APB) was established in FY95. The updated APB, 1 Jun 98 (approved 9 Jul 98), maintained the same dollar threshold as the FY95 APB but updated from BY95\$ to BY98\$. The Jul 98 APB objective (BY98\$M) is \$251.530. Full Operational Capability threshold has slipped from Sep 00 to Mar 03.

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	Dollars in Millions					
	Program Year 1 (FY95)	Program Year 2 (FY96)	Program Year 3 (FY97)	Program Year 4 (FY98)	Program Year 5 (FY99)	Program Year - N (FY00-03)
APB Total Resources by FY	\$15.905	\$28.815	\$60.142	\$44.207	\$31.211	\$71.250
Rebaseline Total Resources by FY						

- GTN has not been rebaselined since initial program establishment.

**Part III. Cost, Schedule, and Performance Goals:**

**A. Description of Performance based system(s):**

**Baseline Information:**

- Baseline Information: GTN development baseline was established 20 Mar 95.
- Management Oversight - Earned Value is used to monitor actual costs and schedules versus planned. Lockheed Martin submits a monthly Cost Performance Report (CPR) and provides weekly updates by project. Performance Analyzer (PA) is used to enhance cost performance management analysis.

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	Cum total FY1999 and prior	FY2000	FY2001	FY2002	FY2003	Cum total FY2004 through FY2005	Total
<b>B. Previous Balance:</b>							
Cost Goals (\$M)	\$149.069	\$31.211	\$26.880	\$19.811	\$13.160	\$11.399	\$251.530
Schedule Goals (milestones)	42	12	12	0	0	0	66
<b>C. Baseline:</b>							
Cost Goals (\$M)	\$149.069	\$31.211	\$26.880	\$19.811	\$13.160	\$11.399	\$251.530
Schedule Goals (months)	42	12	12	12	12	6	96
<b>D. Current Estimate:</b>							
Cost Goals (\$M)	\$149.069	\$31.211	\$26.880	\$19.811	\$13.160	\$11.399	\$251.530
Schedule Goals (months)	42	12	12	12	12	6	96
<b>E. Variance from Baseline Goals:</b>							
Cost Goals (\$M)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Schedule Goals (months)	0	0	0	12	12	6	30

- GTN has not been rebaselined since initial program establishment.
- As a result of increased functionality, FOC threshold has changed from Sep 00 to Mar 03.

**F. Corrective Actions:**

No corrective action required. Schedule change for FOC is a result of increased functionality to provide the DOD community with electronic data interchange which will vastly improve the ITV picture; continue to enhance our worldwide web application; move into

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the world of "customization" enabling users to tailor GTN information to their mission needs; and begin using GTN to manage and measure DTS performance on a near-real time basis by integrating cost scenario estimating, Working Capital Fund rate charges, and operational analysis capabilities. USTRANSCOM was assigned the responsibility by OSD for coordinating the distribution and synchronization of transportation-related reference tables. GTN, as the source of record for DOD In-transit Visibility (ITV) information, will be the repository for these tables. Implementation of a GTN Transportation Reference Server (TRS) will serve as the common source of reference tables for DOD transportation automated information and command and control systems.

**Schedule Goals:  
Milestones**

<b>Baseline (Milestone) Schedule</b>	<b>Last President's Budget (Month Year)</b>		<b>Current Submission (Month Year)</b>	
	<b>Approved</b>	<b>Achieved</b>	<b>Approved/Estimated</b>	
Dev Contract Award	Sep 95	Mar 95	Mar 95	
MAISRC Milestone II Review	Oct 95	Sep 95	Sep 95	
PDR	Mar 96	Nov 95	Nov 95	
CDR	Sep 96	Nov 95	Nov 95	
DT&E	Jul 97	Nov 96	Nov 96	
RAA	Jul 97	Nov 96	Nov 96	
IOT&E	Sep 97	Dec 96	Dec 96	
IOC	Sep 97	Apr 97	Apr 97	
Post-IOC Functionality	Sep 00		Mar 03	
FOC	Sep 00		Mar 03	

**Performance Goals:**

Performance goals are on track since the last submission. FOC has moved from Sep 00 to Mar 03, approved Jul 98.

**DEPARTMENT OF DEFENSE  
UNITED STATES TRANSPORTATION COMMAND  
FY2001 BUDGET ESTIMATE SUBMISSION**

**G. Year 2000 Special Information:**

**Y2K Phase**

	<b>Previous President's Budget</b>	<b>Current Submission</b>
Date of Accomplishment	Prior to 31 Dec 98	Certified level 2a - 10 Dec 98
Funding Estimate by Phase	Accomplished within project funding.	Accomplished within project funding.
Estimate time for full Y2K Compliance	Prior to 31 Dec 98	Certified level 2a - 10 Dec 98